1. General Description

A: SPECIFICATION

Cooling system					Electric fan + Forced engine coolant circulation system
Total engine coolant capacity				L (US qt, Imp qt)	7.6 (8.0, 6.7)
Water pump	Type				Centrifugal impeller type
	Discharge performance	Discharge rate		L (US gal, Imp gal)/min	240 (63.4, 52.8)
		Pump speed — Discharge pressure			4,956 rpm — 140 kPa (14.0 mAq)
		Engine coolant temperature			80°C (176°F)
	Impeller diameter			mm (in)	66 (2.60)
	Number of impeller blades				8
	Pump sprocket outer diameter			mm (in)	60.60 (2.39)
Thermostat	Type				Wax pellet type
	Starting temperature to open				80 — 84°C (176 — 183°F)
	Fully opens				95°C (203°F)
	Valve lift			mm (in)	9.0 (0.354) or more
	Valve opening size			mm (in)	35 (1.38)
Radiator fan	Motor input	Main fan		W	200
		Sub fan		W	200
	Fan diameter / Blade	Main fan			320 mm (12.6 in)/5
		Sub fan			320 mm (12.6 in)/7
Radiator	Type				Cross flow, pressure type
	Core dimensions	Width × Height × Thickness		mm (in)	674.2 × 478.6 × 27 (26.543 × 18.842 × 1.06)
	Pressure range in which cap valve is open		Positive pressure side	Standard	73.6 — 103.0 (0.75 — 1.05, 11 — 15)
				Limit	63.6 (0.65, 9)
		kPa (kg/cm^2, psi)	Negative pressure side	Standard	–1.0 — –4.9 (–0.01 — –0.05, –0.1 — –0.7)
	Fins				Corrugated fin type
Reservoir tank	Capacity			L (US qt, Imp qt)	0.45 (0.48, 0.40)

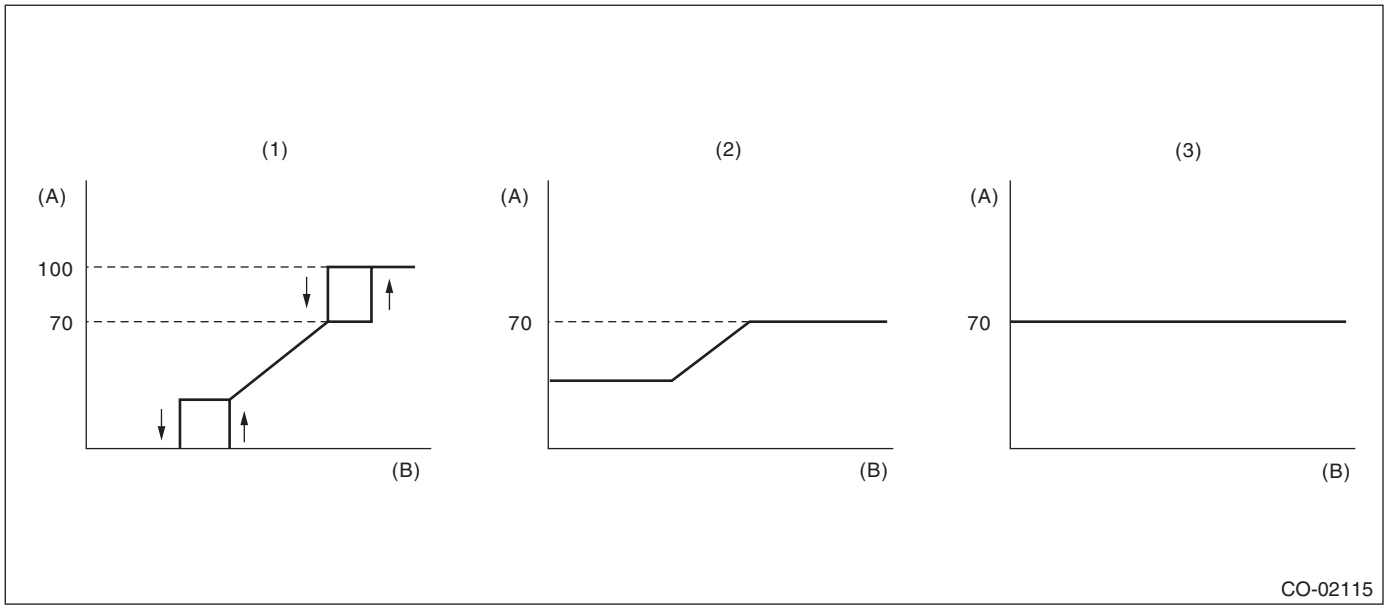
	Recommended materials	Item number	Alternative
Coolant	SUBARU SUPER COOLANT (concentrated type)	—	—
	SUBARU SUPER COOLANT (diluted type)	K0670Y0001	
Water for dilution	Distilled water	—	Soft water or tap water
Cooling system protective agent	Cooling system conditioner	SOA345001	—

• OUTSIDE TEMPERATURE: LESS THAN 35°C (95°F)

A/C compressor load		Engine coolant temperature		
		Increase: less than 95°C (203°F) Decrease: less than 92°C (198°F)	Increase: 98 — 101°C (203 — 214°F) Decrease: 92 — 99°C (198 — 210°F)	Increase: 102°C (216°F) or more Decrease: 100°C (212°F) or more
OFF		0%	Refer to fig. (1)	100%
ON	Middle pressure switch OFF	Refer to fig. (2)		100%
	Middle pressure switch ON	Refer to fig. (3)		100%

• OUTSIDE TEMPERATURE: 35°C (95°F) OR MORE

Vehicle speed	A/C compressor load		Engine coolant temperature		
			Increase: less than 95°C (203°F) Decrease: less than 92°C (198°F)	Increase: 95 — 101°C (203 — 214°F) Decrease: 92 — 99°C (198 — 210°F)	Increase: 102°C (216°F) or more Decrease: 100°C (212°F) or more
During acceleration: 19 km/h (12 MPH) or less During deceleration: 10 km/h (6 MPH) or less	OFF		Refer to fig. (1)		100%
	ON	Middle pressure switch OFF	Refer to fig. (2)		100%
		Middle pressure switch ON	100%		
During acceleration: 20 — 69 km/h (12 — 43 MPH) During deceleration: 11 — 64 km/h (7 — 40 MPH)	OFF		Refer to fig. (1)		100%
	ON	Middle pressure switch OFF	100%		
		Middle pressure switch ON	100%		
During acceleration: 70 — 105 km/h (43 — 65 MPH) During deceleration: 65 — 103 km/h (40 — 64 MPH)	OFF		Refer to fig. (1)		100%
	ON	Middle pressure switch OFF	Refer to fig. (2)		100%
		Middle pressure switch ON	Refer to fig. (3)		100%
During acceleration: 106 km/h (66 MPH) or more During deceleration: 104 km/h (65 MPH) or more	OFF		Refer to fig. (1)		100%
	ON	Middle pressure switch OFF	Refer to fig. (2)		100%
		Middle pressure switch ON	Refer to fig. (3)		100%



(A) Fan speed (%)

(B) Water temperature

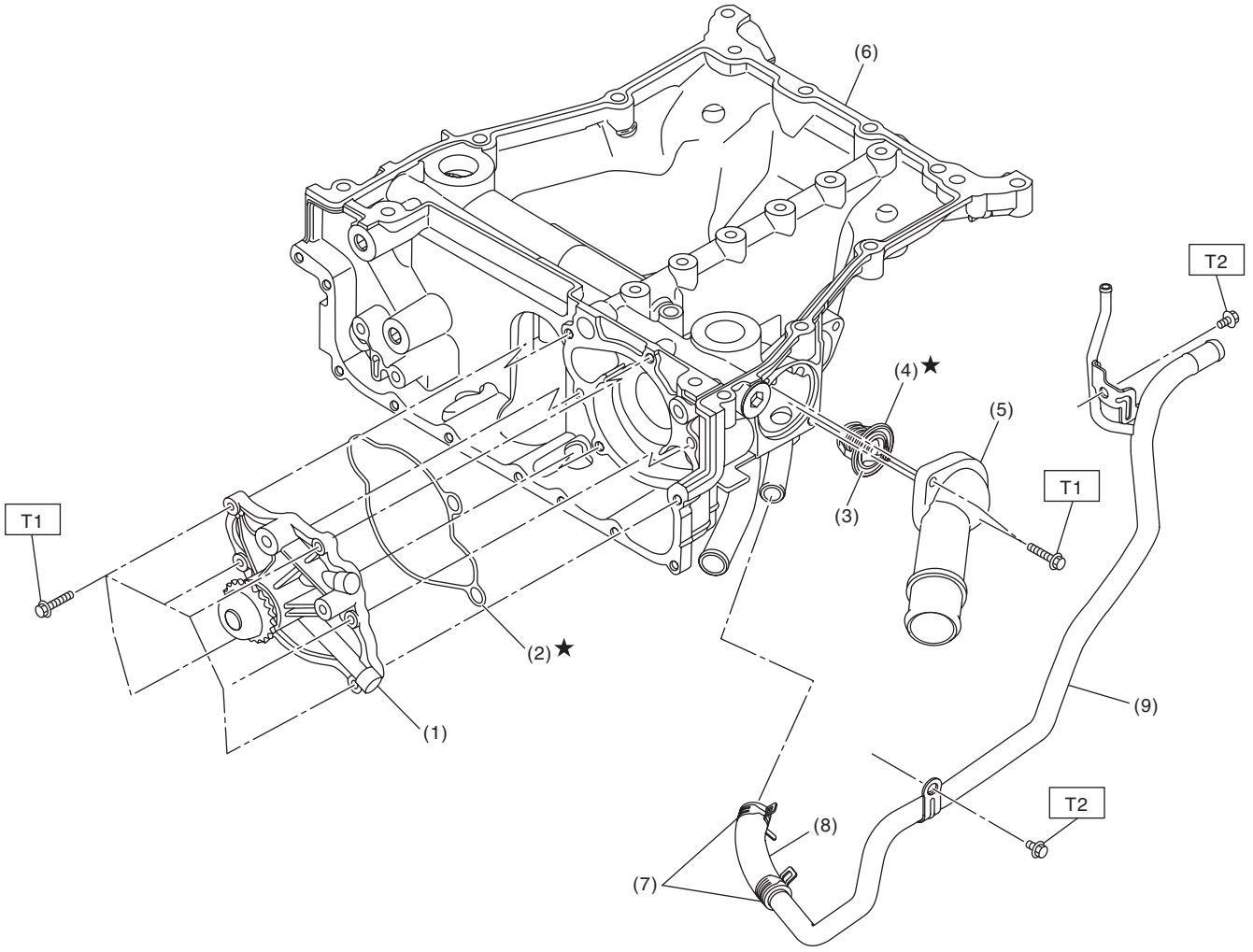
(1) A/C OFF control

(2) A/C ON control (A/C middle pressure switch OFF)

(3) A/C ON control (A/C middle pressure switch ON)

B: COMPONENT

1. WATER PUMP & WATER PIPE

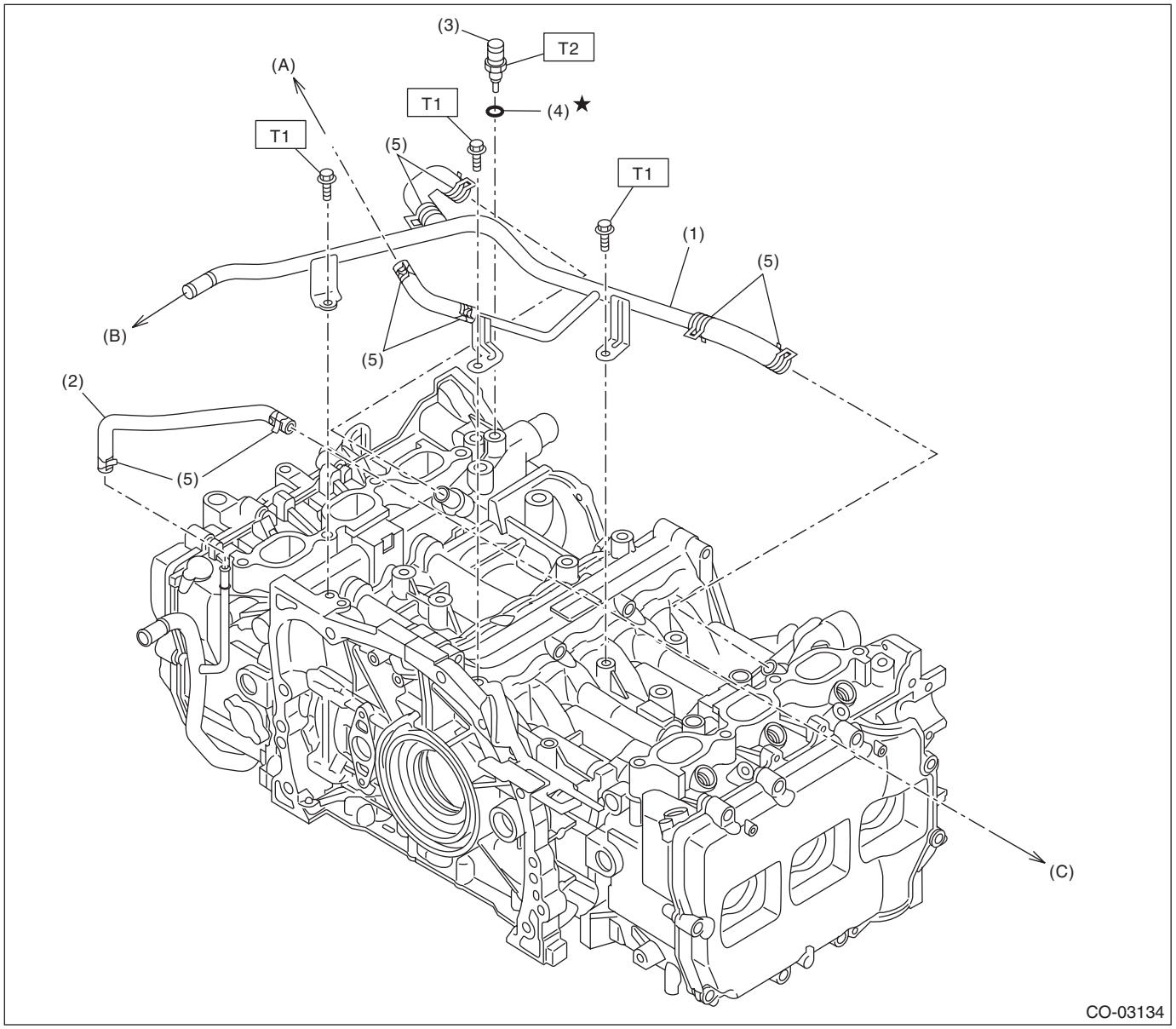


CO-03129

(1) Water pump ASSY
(2) Gasket
(3) Thermostat
(4) Gasket
(5) Thermostat cover
(6) Oil pan upper
(7) Clip
(8) Hose
(9) Water return pipe

Tightening torque: N·m (kgf-m, ft-lb)
T1: 6.4 (0.7, 4.7)
T2: 16 (1.6, 11.8)

2. ENGINE COOLANT TEMPERATURE SENSOR & HEATER HOSE



(A)	To the throttle body	(B)	To the heater hose on body side	(C)	To the throttle body
(1)	Heater pipe	(4)	Gasket		
(2)	Preheater hose	(5)	Clip		
(3)	Engine coolant temperature sensor				

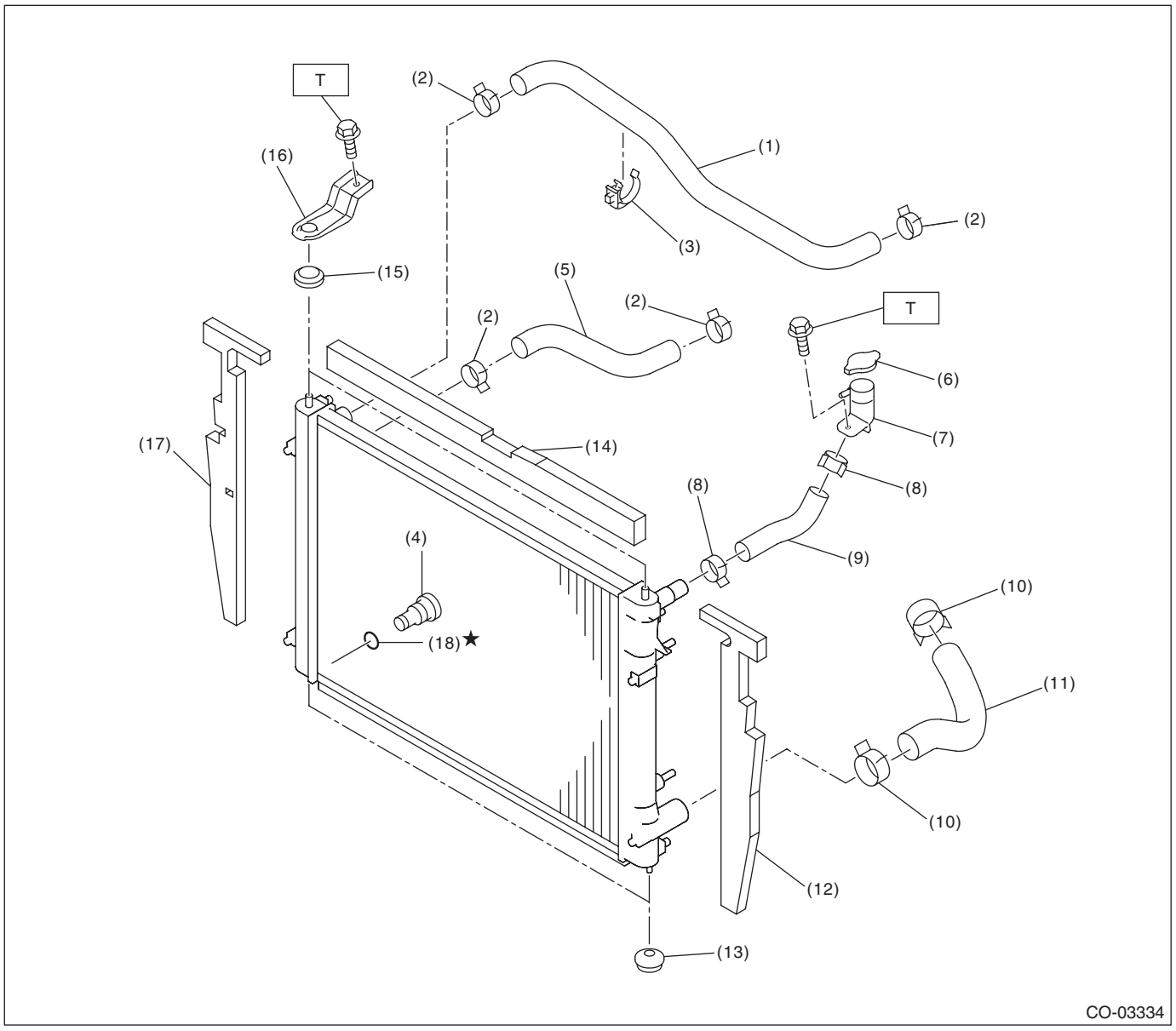
Tightening torque: N·m (kgf-m, ft-lb)

T1: 19 (1.9, 14.0)

T2: 22 (2.2, 16.2)

3. RADIATOR AND RADIATOR FAN

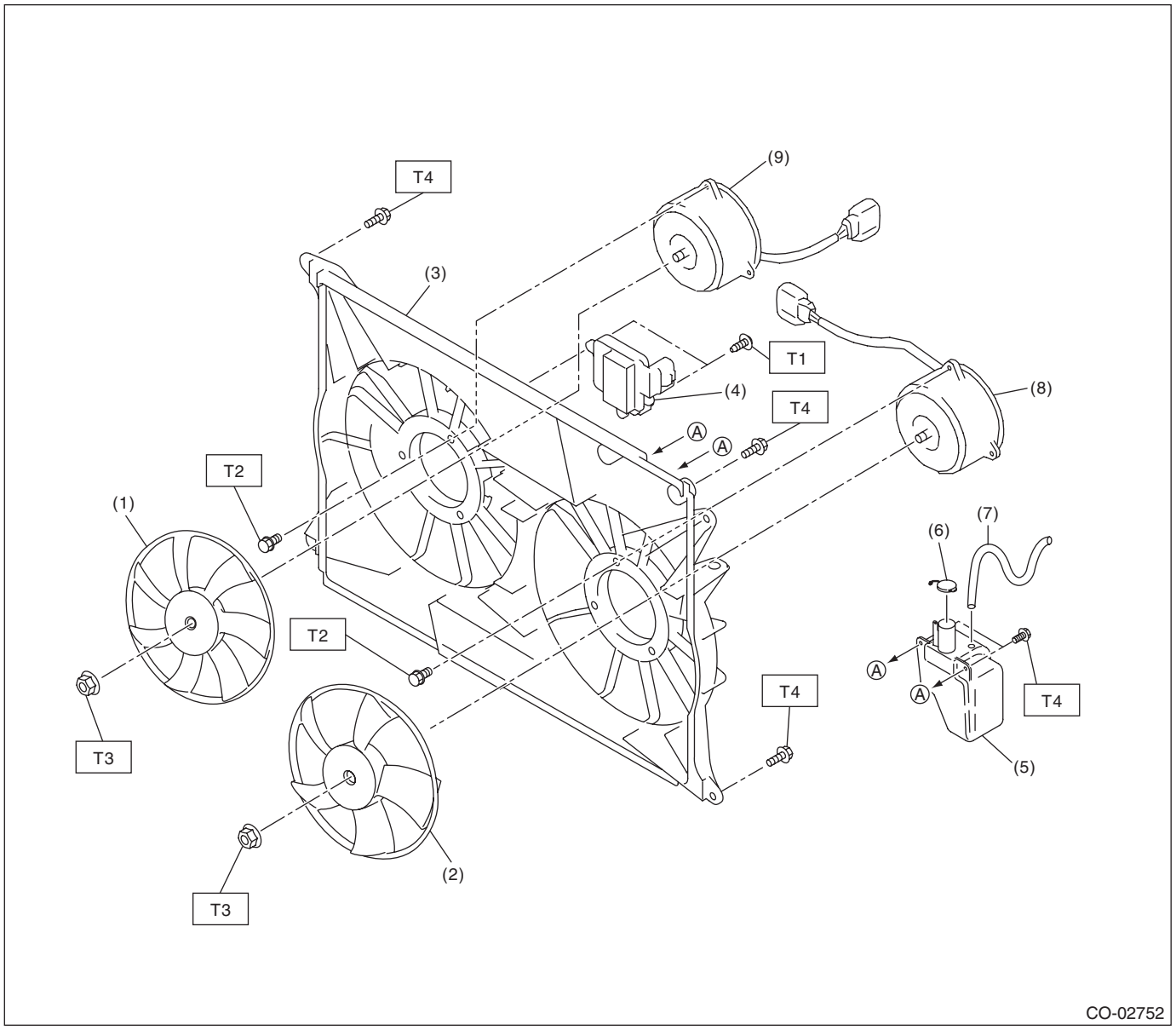
- Radiator



(1)	Radiator inlet hose LH	(10)	Clip
(2)	Clip	(11)	Radiator outlet hose
(3)	Clip	(12)	Packing
(4)	Drain plug	(13)	Radiator lower cushion
(5)	Radiator inlet hose RH	(14)	Packing
(6)	Radiator cap	(15)	Radiator upper cushion
(7)	Filler neck	(16)	Radiator upper bracket
(8)	Clip	(17)	Packing
(9)	Radiator cap hose	(18)	O-ring

Tightening torque: N·m (kgf-m, ft-lb)
T: 12 (1.2, 8.9)

- Radiator fan



(1) Radiator sub fan
(2) Radiator main fan
(3) Radiator fan shroud
(4) Radiator fan control unit
(5) Reservoir tank
(6) Reservoir tank cap
(7) Over flow hose
(8) Radiator main fan motor
(9) Radiator sub fan motor

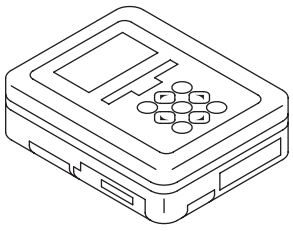
Tightening torque: N·m (kgf-m, ft-lb)
T1: 2.6 (0.3, 1.9)
T2: 3.8 (0.4, 2.8)
T3: 6.3 (0.6, 4.6)
T4: 7.5 (0.8, 5.5)

C: CAUTION

- Prior to starting work, pay special attention to the following:
  1. Always wear work clothes, a work cap, and protective shoes. Additionally, wear a helmet, protective goggles, etc. if necessary.
  2. Protect the vehicle using a seat cover, fender cover, etc.
  3. Prepare the service tools, clean cloth, containers to catch grease and oil, etc.
- Prepare a container and cloth to prevent scattering of engine coolant when performing work where engine coolant can be spilled. If the oil spills, wipe it off immediately to prevent from penetrating into floor or flowing out for environmental protection.
- Vehicle components are extremely hot immediately after driving. Be wary of receiving burns from heated parts.
- When performing a repair, identify the cause of trouble and avoid unnecessary removal, disassembly and replacement.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from battery.
- Always use the jack-up point when the shop jacks or rigid racks are used to support the vehicle.
- Remove contamination including dirt and corrosion before removal, installation, disassembly or assembly.
- Keep the removed parts in order and protect them from dust and dirt.
- All removed parts, if to be reused, should be reinstalled in the original positions with attention to the correct directions, etc.
- Bolts, nuts and washers should be replaced with new parts as required.
- Be sure to tighten the fasteners including bolts and nuts to the specified torque.
- Follow all government and local regulations concerning disposal of refuse when disposing engine coolant.

D: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST1B022XU0	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for troubleshooting for electrical system.

2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance and voltage.
Radiator cap tester	Used for checking radiator and radiator cap.